CDC *Vital Signs* Town Hall Teleconference on
Foodborne Illness: Common, Costly… Preventable
Transcript

June 14, 2011
2:00pm – 3:00pm EST

Coordinator: Welcome and thank you for standing by. All participants are in a listen only mode until the question and answer section of today's call. Today's conference is being recorded. If you have any objections you may disconnect at this time. I'd now like to introduce Dr. Judy Monroe, Deputy Director for CDC and OSTLTS Director. You may begin.

Judy Monroe: Well thank you operator and good afternoon everyone. I'm Judy Monroe, directing the Office for State, Tribal, Local, and Territorial Support, and I want to welcome everybody to CDC's June *Vital Signs* town hall teleconference on foodborne illness.

You know, we all expect our food to nourish us, not harm us. And yet every year one in six Americans gets sick from eating contaminated food. Generally assumed to be mild, food poisoning can in fact be life threatening. And it's sobering to know that 3,000 Americans die each year from foodborne illness.

The *E. coli* outbreak in Europe shows us the very real consequences of infection associated with contaminated food. I actually just vacationed in Europe last week and this was quite the buzz over there and folks had a lot of concerns about the safety of their food. This really confirms how important disease tracking, food tracing and prevention measures are to making food safer and to keeping people from getting sicker from the food that they eat.

As you're going to hear today in the presentations, this month's *Vital Signs* report highlights the progress that we've made in making foods safer to eat and challenges us to apply those lessons that we've learned about reducing *E. coli* O157 infections to reduce illness caused by *Salmonella*.

Reading the report I was reminded of how especially important strong partnerships are in addressing this issue. The vast majority of foodborne outbreaks occur at a local or state level, making health departments a vital link to protecting our food supply from the farm all the way to the table. If prevention efforts fail at one point then we get the cascading effect.

Addressing this issue demands we strengthen our ability to detect illness and quickly identify outbreaks through laboratory testing and prompt investigation. We also need to use proven measures to reduce contamination in processing plants, develop new policies for the riskiest foods and create tools that allow for faster laboratory fingerprinting and more standardized rapid data collection sharing and analysis.

Unfortunately I won't be able to stay for the duration of the call today, but I encourage you to take advantage of this opportunity to share strategies, lessons learned, challenges and success stories. Collaboration and information sharing are keys to tackling this issue and having a meaningful impact on the safety of our food supply.

So without further delay, I'd like to turn the teleconference over to Kimberly Wilson from the Knowledge Management Branch here at OSTLTS who's going to introduce our speakers and facilitate the discussion portion of today's meeting.

Kimberly Wilson: Good afternoon everyone and thank you for joining us. Before we get started I want to take a moment to remind everyone about the OSTLTS *Vital Signs* town hall website. To get there, go to www.CDC.gov/OSTLTS—that's O-S-T-L-T-S—and click twice on the town hall tab in the flash module at the top of the page.

In the resources section there's a link to biographies for each of our presenters, today's PowerPoint presentation so you can follow along, and a way to provide feedback. I encourage you to take a few moments to let us

know your thoughts on today's call. This is also where you will be able to find the recording and transcript of today's meeting later on this week.

Now it is my pleasure to introduce our speakers. I'll introduce them all now and each speaker will hand off to the next one.

Joining us today to provide a summary of this month's *Vital Signs* report is Dana Pitts and Dr. Olga Henao, both with the Division of Foodborne, Waterborne and Environmental Diseases in CDC's National Center for Emerging and Zoonotic Infectious Diseases. In her role, Ms. Pitts leads scientific communications, while Dr. Henao is team lead for FoodNet, CDC's foodborne diseases active surveillance network.

Our next speaker is Sarah Lathrop, Associate Professor of Pathology at the University of New Mexico. Dr. Lathrop has been serving as the principal investigator for the FoodNet portion of New Mexico's Emerging Infections Program since 2003.

Timothy Jones, our last presenter today, will highlight the work he has been doing as State Epidemiologist for the Tennessee Department of Health. Dr. Jones is active in many studies and projects at the CDC, the Council for State and Territorial Epidemiologists, the Institute of Medicine and other national and international organizations.

Ms. Pitts, welcome.

Dana Pitts: Yes, hi. Thank you. Foodborne illness - it's common and costly. We start our message here because this really does frame the problem. Each year one in six Americans gets sick from the food they eat—sometimes acutely, almost always unexpectedly. Truly the message is about people. Whether here or in Germany, food should be healthy and safe.

You all are on the front lines and you experience the effects of foodborne illness from the cost of lives, industry, public health laboratories, [and] a

variety of ways that you all experience the price of foodborne illness. Next slide.

One of the challenges, but also opportunities for us at CDC, is that prevention includes many partners acting at different points along the food chain from the farm to the table. We're often asked what CDC's role is in that we're not a regulatory agency. We are truly the vital link. We support partnerships and we work hard to sustain them all along the continuum.

When asked what our key message for this launch was, we thought about it and we kept thinking it can't be this simple but it is. It's that everybody has to work together at the same time impacting each step along this continuum—a simple message, a complex enactment. And it was interesting to see the reaction as this message went up and that some people just said it can't be that simple, but it is. We have to have everybody working together. Next slide.

We decided for our communication campaign to focus on this chain. And those of you who have access to the *Vital Signs* fact sheet we wanted to go through and show a variety of outbreaks and how—in our CDC experience, with our partners, particularly in the state and local level and with our regulatory partners—how contamination at each step and prevention measures are needed.

The way we process foods [and] the way we distribute food is increasingly complex. The fact [is] that foodborne outbreaks go onto many states. We have multi-state outbreaks and that has increased sevenfold over the last 10 years. Foodborne illnesses cause emotional and economic hardship. We looked at the price of just *Salmonella* in terms of medical expenditures and it is $365 million. [The] societal cost of even just a fatal—even one single fatal case of *E. coli* has been estimated at $7 million. I'd like to turn it over to Dr. Henao now and she will explain more about the data itself.

Olga Henao: Thank you Dana. The data that we will be presenting today and the results summarized in the *Vital Signs MMWR* come from the Foodborne Diseases Active Surveillance Network, otherwise known as FoodNet.

This firm was established in 1996 and serves as the principal foodborne disease component of the Emerging Infections Program at the Centers for Disease Control and Prevention. What makes FoodNet unique is that the program is a collaboration among CDC; ten participating state health departments; the U.S. Department of Agriculture, specifically the Food Safety and Inspection Service; and the Food and Drug Administration. Next slide.

In our *Vital Signs,* we reported some main findings. One, that *Salmonella* infections have not declined during the past 15 years. In fact, when we compared to a more recent time period (2006-2008) we saw a 10% increase in the incidents of these infections. In contrast, Shiga toxin-producing *E. coli* (STEC) O157 infection has declined to the 2010 national health objective target of less than one case per 100,000. We have also seen sustained declines in the incidence of infections caused by *Campylobacter*, *Listeria*, *Shigella* and *Yersinia*. Next slide.

We also looked at high risk groups. We found that the reported incidences of *Salmonella*, *Campylobacter*, *Shigella*, *Cryptosporidium*, STEC O157, STEC non-O157, and *Yersinia* infections were highest among children aged less than five years. And for infections with most pathogens under FoodNet surveillance, infected persons aged more than 60 years are at greater risk than younger persons for hospitalization and death.

So what can be done in order to control or minimize these infections? There are many things.

- Government can implement policies and regulations and track an investigated illness.
- As Dana mentioned, it's really the chain from the farm to the table. So along that chain, farmers, grocery stores and places that make, sell or

serve food can use good management practices to reduce contamination, keep good records of where food and food ingredients come from, and train and certify managers in food safety in all restaurants.

- Healthcare providers can also play a role by diagnosing and treating infections using best practices and reporting infections rapidly, [and] also [by] talking to the high risk patients about food safety.
- And everyone has a role, as has been stated previously. We can all, in our homes, follow safe food handling practices such as clean, separate, cook, and chill.

The key points of the article are that *Salmonella* infections have not declined during the past 15 years. In contrast, we have seen declines in the incidence of *E. coli* O157 infections. *Salmonella* and other infections can be prevented using approaches and lessons learned that were successful in reducing STEC O157 such as monitoring food production, preventing food contamination and investigating illness and outbreaks.

And one thing to highlight, as stated by Dana and others, surveillance is more than just numbers. It's about people and that is why we continue to do the work that we do. And with that, I would like to invite Dr. Sarah Lathrop to provide her perspective on the matter.

Sarah Lathrop: Thank you Olga. This is Sarah Lathrop from the University of New Mexico's Health Sciences Center. I'm also the principal investigator for the FoodNet portion of New Mexico's Emerging Infections Program. I'm just going to share a brief overview with you today regarding New Mexico's experience as part of FoodNet Active Surveillance.

If you look at the first slide, it contains a map of New Mexico and it really sums up the challenges that we face in establishing an active surveillance network in this state. We are the fifth largest state geographically. We have a population of $2 million people scattered 121,000 square miles. One-third of

the population is centered in Bernalillo County, which is shown in yellow at the center of the map, and that is Albuquerque and its affiliated metropolitan areas. The rest of the population however, is typically serviced by smaller hospitals—they're often very remote. In 2003 when we began setting up this network, nobody was using electronic reporting.

We also have a fair number of residents in the eastern and southern parts of the state that do travel to Texas for their healthcare and we didn't want to lose that information even if they were seeking healthcare out of state—we had to find a way to capture that data as well.

We also have a significant American Indian population. It is 10% of our total state population. Very often they live in very remote areas, often with very limited communication access.

So in light of these challenges, we quickly realized that we would need to go to these facilities. We couldn't sit back in Bernalillo County and say - give them a call and say, you know, fax us what you have. We needed to go to those facilities and get to know them. So with that in mind, we hired four masters-level surveillance officers and we assigned each one one quadrant of the state and they're color coded on that map. Every other month, one of those surveillance officers will go to their assigned facilities and sit down with the lab directors or the infection preventionists and go through the records to get the information that we need.

Luckily many of the labs have converted to electronic reporting, but it's typically done at the facilities. And 11 of our 54 facilities still rely on manual reporting. So our surveillance officers are out there going through the log books [and] the handwritten index cards to get the laboratory results that we need, not just for FoodNet but for the other aspects of the Emerging Infections Program as well.

Very luckily for us, three of the four original surveillance officers hired in New Mexico are still with the program. And so the key for our success has

really been the relationship between those really good surveillance officers and the personnel at the facilities that they visit each—every trip they take, which is every other month throughout the year. They've really come to know them since 2003. It makes it much easier when we're initiating special studies or asking for additional information.

And we do try to set it up as a two-way street. If there's something they need from the university or the health department—if it's information, sometimes shipping materials—we can provide them with that so that it's not just us taking their data and then leaving town. It's communication with those facilities.

Moving to the next slide, you can see the fruits of the labor of those surveillance officers and the many miles they've logged over the years. Thanks to our participation in FoodNet, we have a very good understanding of the burden of foodborne disease in the state of New Mexico.

And you can see year after year it's the same five most common organisms that are responsible for the majority of the burden of foodborne illness in our state. Typically *Salmonella* and *Campylobacter* are the two most commonly recognized infections in the state, followed by *Cryptosporidium*, [*E. coli*] and *Shigella*. We do surveillance for the other FoodNet organisms, including Vibrio and *Listeria*, but for each of our surveillance years pictured here, those contributed six or fewer cases per year so we didn't include those on the slide. We didn't want to clutter it up, but they are there.

And you can see that from year to year the patterns are pretty similar, with the exception of 2008. That was due to two unusual outbreaks that year. One was *Salmonella* Saintpaul, which infected a large number of New Mexico residents, and the other was a *Cryptosporidium* outbreak traced back to a traveling swim team that unfortunately competed in a large number of swim meets throughout the state instead of perhaps staying home and taking care of

their diarrheal illness. But that was an unusual year and after that the patterns have been pretty similar.

Moving to the next slide, we stratified our results by organism and race/ethnicity. New Mexico is referred to as a tri-ethnic state. The majority of the population is either Hispanic, non-Hispanic/White, or American Indian. And when you stratify by race/ethnicity, what's really striking is the disproportionately large foodborne disease burden among our American Indian population. We are working with our research partners both at the New Mexico Department of Health and the University of New Mexico, to better understand this situation and what possible prevention measures could be put into place to help address that concern.

We did have the opportunity this spring to share our FoodNet data, similar to what I'm showing today but in more detail, with community health representatives from the Navajo Nation so that they're working with the same information that we are, and we can, as I said, better communicate and build that relationship as well.

Another aspect of our data that is very common and Dr. Henao mentioned is that the rates within our state are very much elevated among children under the age of five. I didn't include that in the slide, [but] it's fairly typical of FoodNet sites and across all organisms, attributable to the poor mastery of hygiene in this population, as well as the marked differences in healthcare seeking behavior for these very young kids.

Moving to the next slide, this is an example of one of the organism-specific analyses that we conduct at the end of each year when we've closed out the data. We want to know what's going on in New Mexico, as well as how we compare to other FoodNet sites. And we also want to see are we hitting those Healthy People objectives going from 2010 to now the 2020 objectives when they are available.

This slide shows the annual incidence rates in New Mexico for Shiga toxin-producing *E. coli* non-O157, and we have seen a steady increase in these non-O157 STECs within our state. When we look at the data, when we compare it to the O157 STECs—those have been at a very low rate. We've met the Healthy People objective for that, but the non-O157 STECs have continued to increase. And it seems to be primarily among non-white residents of the state, children under the age of five, and people living in urban areas when we look at the negative binomial models for that, but these results must be taken with a grain of salt due to the fact that more and more laboratories within the state are moving to non-culture diagnostics for the identification of non-O157 STECs.

We've just completed a round of laboratory surveys so we'll have a better understanding now of what non-culture diagnostics are being used, for which organisms, and how that could impact our case identification and case reporting. Are we seeing actually legitimate increases in incidence or is this a function of those changes in diagnostic methodologies?

We will also be participating, with the rest of the FoodNet site, later this year in a non-O157 STEC case control study, which we're very interested to see the outcome of that to help better understand this organism.

So lessons learned from our state—again it comes back to relationships and really building those relationships within communities so that not only can we retrieve the data that we need as far as active surveillance, but that we can feed back to them and address concerns within their communities.

We have a better understanding of what's going on. Many of the smaller hospitals are facing the closure of their laboratories due to funding cuts, which unfortunately is not all that uncommon anymore, and as they're either switching their methodologies or going to large reference laboratories we're able to keep up with those changes and adjust our surveillance accordingly.

Thanks to the hard work of our great staff here and all of those participants from the local facilities, we have identified *Campylobacter* and *Salmonella* infections as the most commonly identified foodborne diseases in New Mexico since 2004 when we began contributing data to the network.

We've also been able to identify other trends as well. Some of the examples include higher rates, by quite a bit, of *Shigella* in our six border counties and, as I mentioned earlier, the disproportionately large burden of foodborne disease among our American Indian population. We've also recognized the increase in the non-O157 STEC infections and it led us to question the role of non-culture diagnostics within that increase and what that's accounting for.

And I'd just like to wrap up by saying that New Mexico has benefited tremendously from our participation in FoodNet. We've gotten a lot of valuable information from it and the collaboration with the other sites, as well as CDC, has been most helpful in many aspects within our state.

With that I'd like to thank you for your attention and pass the call over to Dr. Tim Jones from Tennessee. Thank you.

Timothy Jones: Hi. Thanks Sarah. I'm going to talk a little bit about Tennessee perspective, lessons that we've learned, and additional opportunities that I think have been identified through the FoodNet data.

If you look down at my first slide, previous *MMWR*s have shown a lot more data about state-to-state variability, but that's one of the things that I want to highlight. And this is perhaps not surprising, but within individual states (like Tennessee) we don't necessarily, you know, fit the average. So for example, we have a lot more *Campylobacter*—excuse me, less *Campylobacter*—more *Shigella*, and about the same rates of *Salmonella* as other FoodNet states.

If you go to the next slide, *Campylobacter* rates in FoodNet demonstrates this a little bit. And you'll see that, among FoodNet states, there are up to four-fold variability in *Campylobacter* rates. We have learned a remarkable amount

I think about, you know, risk factors for *Salmonella* [and] for Shiga toxin-producing *E. coli*.

Campylobacter is a priority in FoodNet this year partly because I think we really don't understand a lot about underlying causes of *Campylobacter* and why rates tend to go up and down. And if you look at the next slide, which shows *Campylobacter* rates in Tennessee, you'll see that the variation is actually not just between states but it's also within states. And these data just show our 13 health department regions within our state and again, two- and three-fold variation amongst adjacent regions and counties. And this makes it really difficult for us to try to get a handle on what's going on, but it also means that when we're trying to look at risk factors that we need to look at them in a very local area rather than sort of making generalizations in broad geographic categories.

Not understanding the [epidemiology] of *Campylobacter* very well is certainly not for lack of trying in FoodNet. We've sliced and diced the data every way we could think of looking at race, healthcare access, changes in or differences in testing, wells, you know, poultry density, and all kinds of things and have not found an obvious explanation. I certainly think that's something that would benefit from more study.

If you look at the next slide, which is rates of Shiga toxin-producing *E. coli* or STEC. Sarah mentioned a little bit about this, but you'll see sort of like the trend that's described in the *MMWR* FoodNet-wide, that we have seen a decrease in culture-confirmed *E. coli* O157 in Tennessee, but we're sort of seeing a concomitant increase in non-O157 STECs. The difficulty here is that a lot of those non-O157 cases are identified by non-culture methods. And increasingly, our labs are, you know, more and more going to non-culture tests. So if you look down at the bottom, you know, a couple of years ago only 16% of our labs were using non-culture testing. Now over half of them are, which means that much of the time when we get data about STECs we will never have an opportunity to tell what the serotype is. And I think one of the

problems that this is introducing is that we—it can appear that our O157s going down but some proportion of the non-O157 STECs are also O157s. We just don't have the serotype information. And that makes it really difficult to try to interpret trends. I think this is something, I assume, that all states increasingly have to deal with and I think, at the national level, it's going to definitely require some attention trying to figure out how we're going to start to handle non-culture based testing.

It's certainly not a problem just with STEC. We're also seeing a lot of non-culture testing with *Campylobacter*; *Salmonella* is on the way and many other diseases as well.

In looking at the slide on *Shigella*, you'll see that this is year to year variation in Tennessee. So not only is there geographic variation but this, you know, we see really dramatic cycles over sort of a four- to six-year period. And again, our cases can go from 200 to 800 depending on the peaks and troughs of this cycle, which means that, depending on when we look at it, interpretations can be really different. And, you know, if I can pick a (nader) year I can make it look like we're doing a pretty good job in Tennessee making things better. Unfortunately it's hard to keep the reporters away two years later when they ask why they're going up and what the heck's wrong with us. It also means that looking at, you know, one year changes nationally or across FoodNet, will not necessarily capture these kinds of local variations.

And even though a lot of *Shigella* isn't foodborne, you know, this—it really makes a lot of difference for what kind of interventions we do and when we have these huge peaks a lot of it's in daycares and clearly, you know, can help us focus our educational messages and interventions there.

And if you look down at the slide on seasonal distribution of *Yersinia*—and I'm sorry I didn't label this very well—but this is several years worth of data and it's just counts in Tennessee. But again, looking at data just from a general perspective it's hard sometimes to get an idea of what's actually

happening at the state and local level. So as a result of an outbreak that we were dealing with it sort of encouraged us to go back and look at previous years worth of data. And it really actually surprised us. It's embarrassing that we hadn't noticed it before, but when we looked at our *Yersinia* rates we saw a couple of really remarkable things. One is that every year we saw and still see really big peaks in December and January over the holiday months. And that entire peak is explained by black and infants less than one year old. So it's a very, very specific and focused population. And it turns out (at least in the south) that happens probably due to chitlins, which is a traditional African American dish with pork intestines, over the holidays. And so it explains a lot of this peak but it also means that, you know, hanging up billboards all over town is not going to take care of the problem. And we can really focus our education and our interventions on a very well-defined target group which is, you know, one of the goals of projects like FoodNet.

So I think some of the lessons that we learned, as you've heard, you know, collecting this kind of data is very resource intensive, but it's very important for identifying interventions and making things improve. Substantial local variation is sometimes hidden I think, you know, in reports like the *MMWR* and national data. But it's really important for all of us to look at that at a state and local level, to figure out how to sort of localize their interventions.

And finally, and I think really importantly, is that we are going to have to increasingly deal with these technological changes or these laboratory changes, particularly with respect to dealing with non-culture methods, if we're going to, you know, continue to be able to get maximal use of the data that we have.

So I'll turn it over to Olga, who I think is going to lead us through some discussion.